

CLOVER WATER COOLERS

**SERVICE
MANUAL**

CAUTION BEFORE SERVICING THE APPLIANCE
READ THE "SAFETY PRECAUTIONS" IN THIS MANUAL

MODEL : B7A , B7B



clover®

TABLE OF CONTENTS

| | |
|--|--------------|
| 1. SPECIFICATION & PARTS IDENTIFICATION | 2 |
| 2. OPERATION & FUNCTION OF PARTS | 3, 4 |
| 1) Cooling Operation | |
| 2) Heating Operation | |
| 3) Function of Parts | |
| 3. INSTALLATION | 5 |
| 4. INSTALLATION PROCEDURES | 5 |
| 5. STORAGE | 6 |
| 6. CLEANING | 6 |
| 7. WIRING DIAGRAM | 7 |
| 8. TROUBLESHOOTING GUIDE | 8, 9, 10, 11 |
| 9. EXPLODED VIEW & SERVICE PARTS LIST | |
| 1) B7A | 12, 13 |
| 2) B7B | 14, 15 |

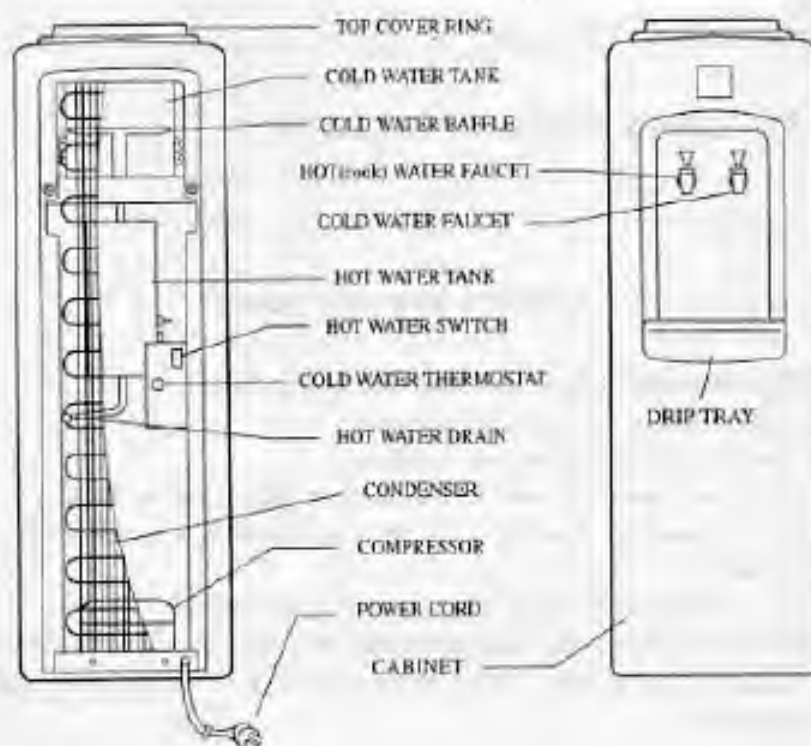
SAFETY PRECAUTIONS

Please read the following before servicing the water cooler.

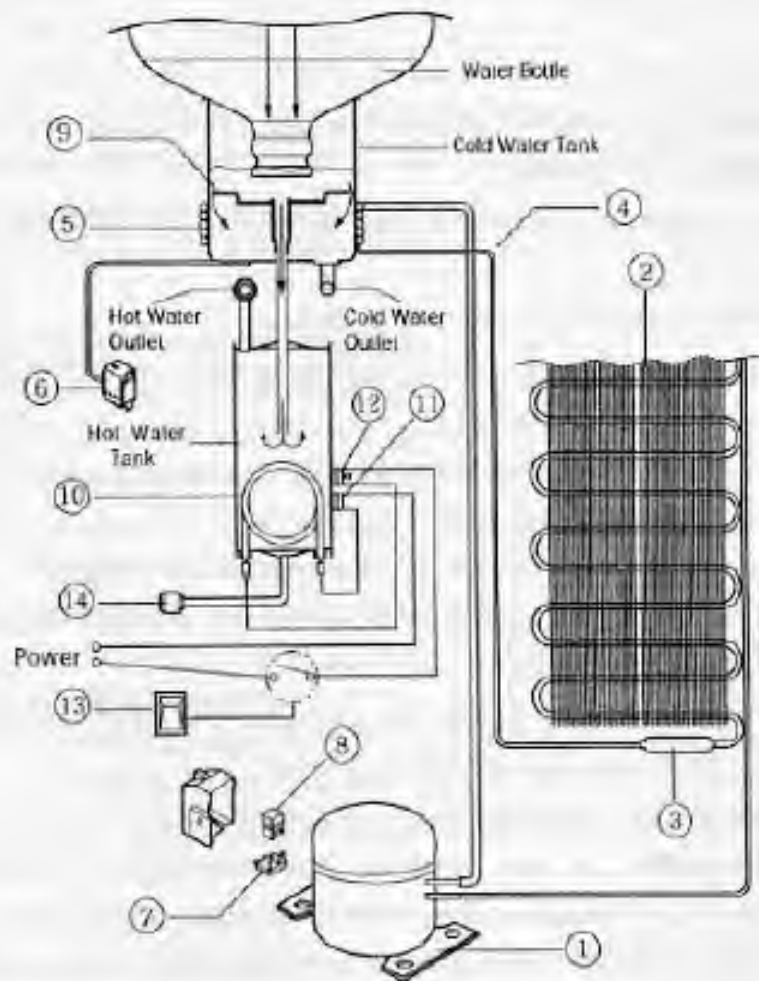
- 1) Check if an electric leakage occurs in the appliance.
- 2) To prevent electric shock, unplug prior to servicing.
- 3) In case of testing with power on, wear rubber gloves to prevent electric shock.
- 4) When using an instrument or replacing a part for repairing, check it is applied rating voltage, current and capacity.
- 5) Prevent water from flowing to electric elements in mechanical parts.
- 6) When carrying or inclining the appliance, remove all the objects on it, fragile objects like glass.
- 7) If the cooling cycle is out of order, contact nearest authorized service center for examination, repair and adjustment.

1. SPECIFICATION & PARTS IDENTIFICATION

| MODEL | | B7A(HOT & COLD) | B7B(COOK & COLD) |
|------------|--------------|---------------------------------------|------------------|
| DIMENSION | | 315W×325D×960H(mm) | |
| WEIGHT | | 15kg | 14kg |
| COLD | CONSUMPTION | 105W | |
| | TEMP CONTROL | AUTO | |
| | TANK | Type 304 Stainless Steel | |
| | CAPACITY | 0.9 GPH of 50°F(3.5 LPH of 10℃) | |
| HOT | CONSUMPTION | 500W | |
| | PROTECTOR | BI-METAL | |
| | TEMP CONTROL | AUTO | |
| | TANK | Type 304 Stainless Steel | |
| | CAPACITY | 2.0 GPH of 185°F (7.5 LPH of 85℃) | |
| ELECTRICAL | | 220-240V, 50/60Hz. 110-127V, 50/60Hz. | |



2. OPERATION & FUNCTION OF PARTS



1) Cooling Operation

The vapor refrigerants that compressed to high temperature & high pressure conditions in the compressor, turn into liquid refrigerant of high temperature and high pressure passing through the condenser, and then turn into the liquid refrigerants of low temperature and low pressure conditions by passing through the capillary tubes.

The liquid refrigerants of low temperature & low pressure absorb the surrounding heat while evaporating in the evaporator and is sucked in the compressor by turning into saturated vapor.

2) Heating Operation

The electric heater inside of the hot water tank heats the supplied water. The temperature of hot water is controlled by the hot control at a proper temperature. In case of overheating, the heat limiter will operate automatically.

3) Function of Parts

- ① **Compressor**: compresses the vapor refrigerant sucked from the evaporator and discharges it to condenser
- ② **Condenser**: changes the compressed vapor refrigerant into the liquid refrigerant by cooling.
- ③ **Drier**: removes moisture and dirt inside pipes
- ④ **Capillary tube**: reduces the pressure of liquid refrigerant and evaporates it in the evaporator under constant pressure.
- ⑤ **Evaporator**: Absorbs the surrounding heats while evaporating the liquid refrigerant, cools down water inside of cold water tank.
- ⑥ **Cold water thermostat** : senses the temperature of cold water tank and controls the electric power supply to the compressor automatically in order to keep the constant temperature of cold water.
- ⑦ **Over Load Protector(OLP)**: Protects the compressor and operates when rising up to abnormal temperature or energizing over current.
- ⑧ **PTC Starter** : Starts up the motor of compressor.
- ⑨ **Cold water baffle** : is very important part separating the supplied water from cold water, hot water, or room temperature water respectively.
- ⑩ **Hot tank heater** : heats the supplied room temperature water to hot water.
- ⑪ **Hot control** : controls the temperature of hot water at a proper automatically.
- ⑫ **Heat limiter** : cuts off the electric power to the heater in case of overheating.
- ⑬ **Hot water switch** : supplies or cuts off the electric power to the heater by setting it ON/OFF
- ⑭ **Drain cap** : can be used for draining water from the hot water tank when cleaning inside or not using for a long time

3. INSTALLATION

- A. Locate water cooler in a well ventilated space where temperature is always above freezing.
- B. Insure proper ventilation by maintaining a minimum clearance of 4 inches on sides and rear of cooler.
- C. Make sure cooler is on a level surface.
Unbalanced placement may cause excessive noise and trembling of the unit.
- D. The recommended placement of the unit is indoor, away from direct sunlight and excessive moisture.
- E. Avoid harmful gas or excessive heat.

4. INSTALLATION PROCEDURES

- A. Install drain receptacle below faucet.
- B. Thoroughly clean the cooling tank and baffle. Baffle must be in place for proper cooling operation.

CAUTION : If the cold water baffle is removed, cold water will not be formed nor discharged.

- C. Invert the bottle on top of the unit.

Use drinking water only. Filling the unit with any other type of beverage(s) may cause significant problems.

CAUTION : AVOID FILLING THE WATER TANK ABOVE THE LEVEL NORMALLY MAINTAINED BY THE INVERTED BOTTLE.

- D. On hot models, depress hot faucet handle until water flow is continuous and clear.
- E. Place the hot water switch in the "ON" position.

CAUTION : HOT MODELS: FAILURE TO FILL HOT TANK WITH WATER BEFORE ON HOT WATER SWITCH, CAN CAUSE PHYSICAL DAMAGE TO THE UNIT.

- F. Check the available power supply against the water cooler data plate to assure correct electrical service.

- G. Allow cooler to operate about 30 minutes for chilled and hot water dispensing.

CAUTION : WATER FROM HOT FAUCET CAN SCALD.

- H. Hot Water Safer Faucet : A safer faucet that deters accidental dispensing of water by toddlers is available. This new faucet is simple and easy to use with one hand.

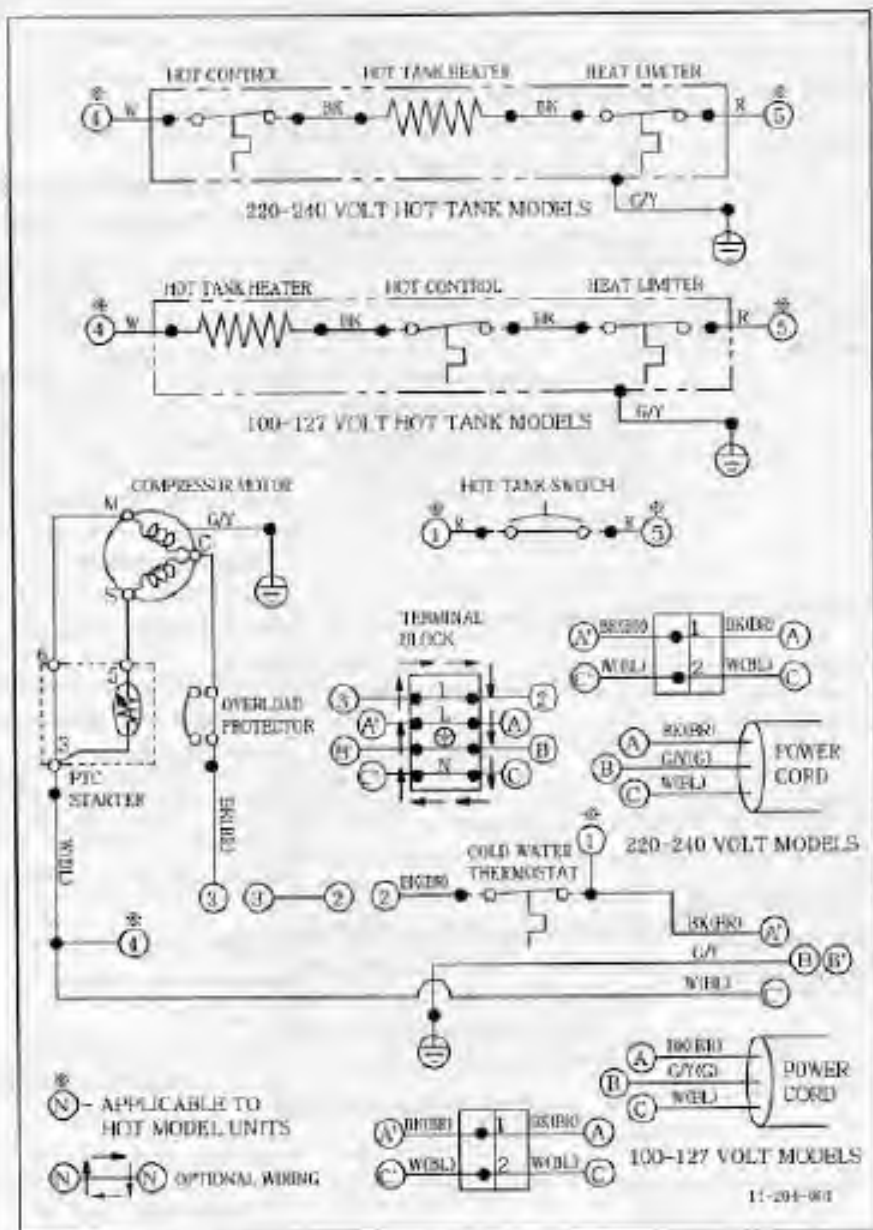
5. STORAGE

- A. Disconnect power supply cord.
- B. Remove water bottle from cooler.
- C. Open faucet(s) to drain water
- D. Hot Models: Place the hot water switch in the "OFF" position. Draw water from the hot faucet until the water is cool. Place a bucket under the drain. Open the drain pipe by turning the drain cap, and drain the water from hot water tank. Turn the drain cap to a closed position when tank is empty.
- E. ALWAYS DRAIN ALL WATER WHEN FREEZING TEMPERATURES ARE ANTICIPATED AND BEFORE SHIPPING THE WATER COOLER.

6. CLEANING

- A. Disconnect the power supply during cleaning and inspection to avoid the dangers of electric shocks.
- B. Keep the condenser free from dirt and dust.
The cooling performance decreases when the condenser is soiled.
- C. Cabinet, top cover ring and drip tray can be cleaned with any non-abrasive household cleaner. To prevent damage to plastic parts, avoid abrasive cleaning aids such as steel wool, etc.

7. WIRING DIAGRAM



8. TROUBLESHOOTING GUIDE

| TROUBLE | POSSIBLE CAUSE | REMEDY |
|--|---|---|
| REFRIGERATION SYSTEM | | |
| A. The unit's compressor does not run. | No electric power to outlet. | Turn on electric power outlet. |
| | The temperature control is misadjustable or defective. | Adjust or replace the temperature control, as necessary. |
| | The wires leading to the temperature control are defective or are not connected. | Check the internal wiring. Make repairs as necessary. |
| | The line voltage is low. | Check the line voltage. It must be at least 90% of minimum voltage. |
| | The compressor over-load protector(OLP) is defective. | Replace the defective over-load protector. |
| | The starting relay(PTC) is defective. | Replace the starting relay. |
| | The compressor is defective. | Replace the compressor. Return cooler to authorized service center or factory for repair. |
| B. Water is adequately chilled, but unit runs excessively or continuously. | Poor ventilation. | Minimum side & rear clearance 4"(10cm). |
| | The condenser is dirty or restricted. | Clean the condenser or relocate the unit to prevent restricting the condenser. |
| | The temperature control is defective (the contacts are shorted or the control is not adjusted properly) | Replace or adjust the temperature control as necessary. |
| | The ambient temperature is high | It is normal for the unit to run continuously at high ambient temperatures. |
| C. The unit compressor runs continuously, but there is no cold water. | There has been a substantial loss in the sealed system's charge of refrigerant. | If refrigerant leak is suspected, return cooler to authorized service center or factory for repair. |
| | The compressor is defective. | Same as above. |

| TROUBLE | POSSIBLE CAUSE | REMEDY |
|---|--|---|
| D. The units excessively and the cold water is not cold enough. | Cold water baffle is not in place | Check inside the reservoir to make sure baffle is fully inserted into the mating socket. |
| | The condenser is dirty or restricted. | Clean the condenser and relocate the unit to prevent restricting the condenser. |
| | The cold water thermostat is set high and/or the unit is in a high ambient environment. | Check the thermostat setting. Adjust the setting as necessary. |
| | Usage of the cold water system is greater than the unit capacity. | Inform the customer of the hot water system's maximum capacity. |
| | The refrigeration system is overcharged or undercharge. | Return cooler to authorized service center or factory for repair. |
| | There is a partial restriction in the refrigeration system. | |
| | The compressor is defective. | |
| E. The unit has a short running cycle. It is cooling, but does not run long enough to cool water to the required level. | If wattage readings are normal, the temperature control may be defective. | Replace the temperature control. |
| | The temperature control is improperly set for the prevailing environmental conditions and unit usage. | Adjust the temperature control. |
| | The compressor motor is defective, causing the unit to cycle on the overload protector. | Replace the compressor. Return cooler to authorized service center or factory for repair. |
| F. A. The cold water flows slowly or not at all. | Defective faucet. | Replace faucet assembly. |
| | The cold water thermostat is so much low, causing ice to build up in the reservoir, blocking water flow. | Defrost cooler. Adjust the temperature control. |
| G. Cook Water too Cold. (cook & cold models) | If cook water is only occasionally used cold water will migrate into the cook water system. | This phenomenon can be happened under normal condition. |

| TROUBLE | POSSIBLE CAUSE | REMEDY |
|---------|----------------|--------|
|---------|----------------|--------|

HOT WATER SYSTEM

| | | |
|--|--|--|
| A. The hot water is not hot. | If cooler equipped with hot water switch may be OFF. | Turn the hot water switch ON. |
| | There is a loose or broken wire connection in the hot water system. | Identify the loose or broken wire connection, repair as necessary. |
| | The hot control is defective. | Replace the hot control. |
| | The heat limiter is "ON". | Push "Reset" button of heat limiter. |
| | The hot tank heater is defective. | Replaced the hot tank heater or tank assembly. |
| B. The hot water is hot, but not hot enough | Usage of the hot water system is greater than its capacity. | Inform the customer of the hot water system's maximum capacity. |
| | The hot control is defective. | Replace hot control. |
| C. The hot water flows slowly or not at all. | Hot water flow is designed to flow slowly and than the cold and cook water to prevent splashing. | Advise the customer of this safety feature. |
| | Defective faucet. | Replace faucet. |
| | Hot tank plugged with mineral deposits. | De-lime tank. |
| D. Hot tank is noisy | The hot tank heater is caked with mineral deposits. | Slight boiling sound normal during heating cycle. De-lime tank. |

NOISE

| | | |
|---|--|---|
| A. There is excessive noise coming from the unit, but it is otherwise operating normally. | The unit is not level. | The unit must be level. Place the unit on a level surface. |
| | A section of the tubing inside the unit is touching other parts of unit, causing noise to be generated due to vibration. | Adjust position of the tubing to make sure it is not in contact with any other parts. |
| | Check the connection of a fixed nut. | Completely connect the fixed nut. |
| | The compressor's operation is noisy because of inherent conditions. | Advise the customer of the unit's normal operating sounds. |

| TROUBLE | POSSIBLE CAUSE | REMEDY |
|---------|----------------|--------|
|---------|----------------|--------|

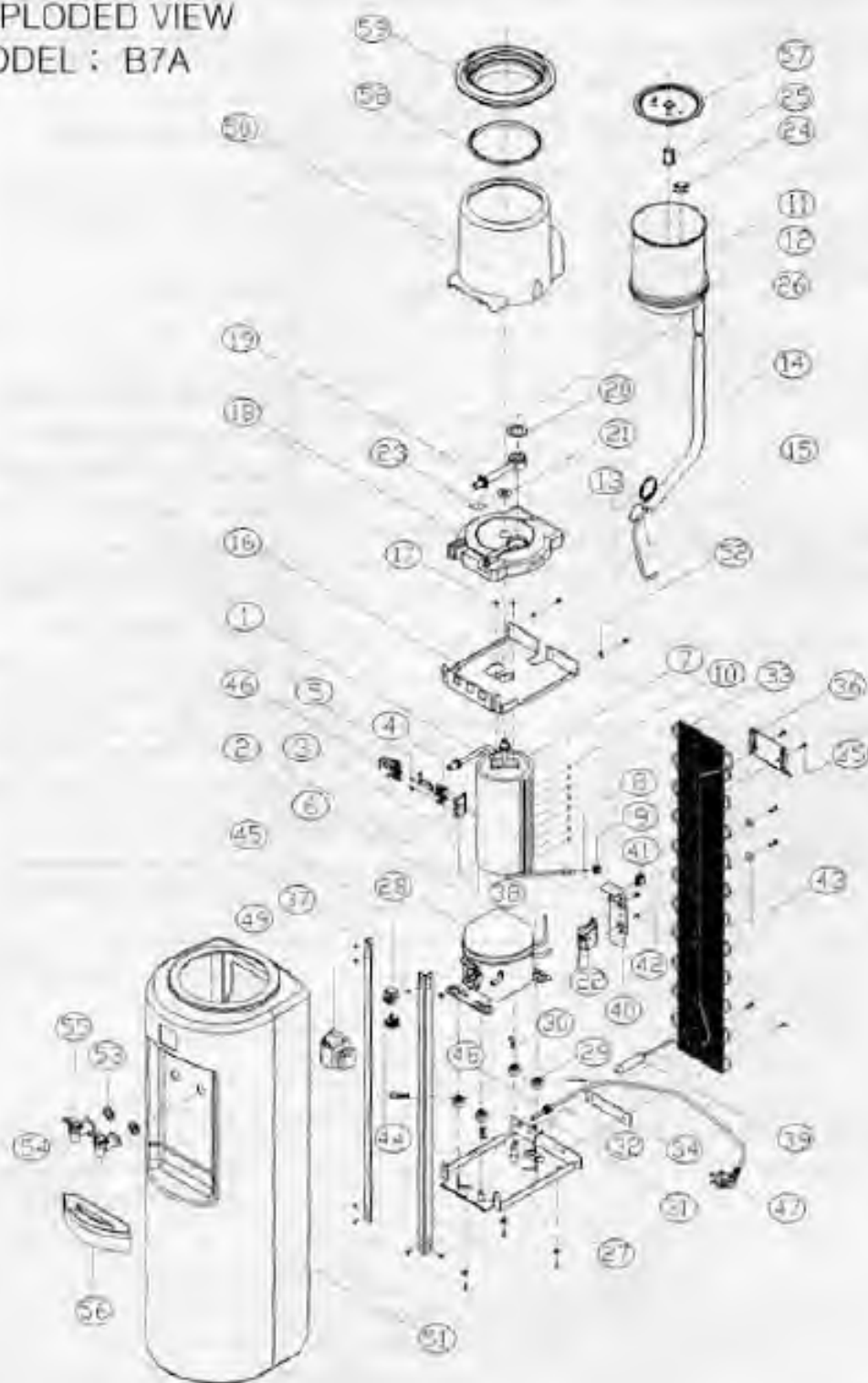
WATER LEAKS

| | | |
|--|--|--|
| A. Water drips from faucet. | The faucet body packing and spring is defective. | Press down the faucet lever several times. Replace faucet assembly. |
| B. Leakage through inside or outside of appliance. | The faucet is not completely connected. | Properly connect the faucet. |
| | Bottle pin hole leak. | Replace the bottle. |

NON SPILL SYSTEM

| | | |
|---|--|--|
| A. Water flow is slow from all faucet. | User has taken a large draw or series of draws and reservoir has not yet refilled. (Non Spill System only) | Wait until the cold water tank is filled with water after a large draw due to inherent restriction of the Non Spill System |
| | Air filter is wet. | Allow filter to dry. Airflow through the filter will gradually return to normal as the filters dries. |
| B. An excessive quantity of water accumulates in the housing. | The housing is designed to hold a small amount of water that may seep through the cap at the bottle neck. | If problem happens on a high percentage of units, there may be a defect in a cap. Contact the cap manufacturer. |

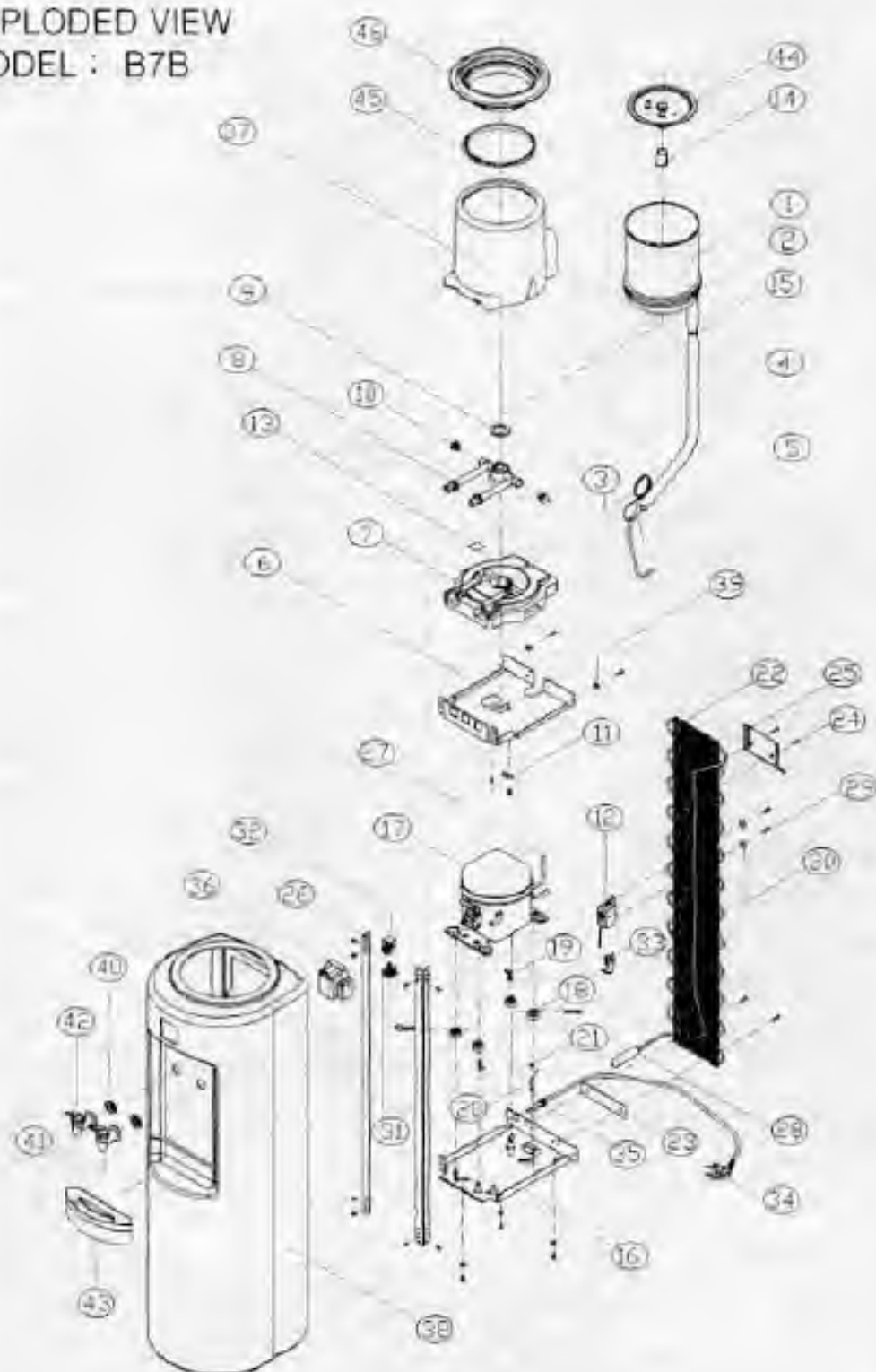
EXPLODED VIEW
MODEL : B7A



B7A SERVICE PARTS LIST

| NO | PART NAME | PART NO. | Q'TY | NO | PART NAME | PART NO. | Q'TY |
|----|----------------------------|------------|------|----|---------------------------|------------|------|
| 1 | HOT WATER TANK ASSY' | 21-010 | 1 | 31 | GROUND WIRE | 07-006 | 1 |
| 2 | BI-METAL BRACKET | 02-006 | 1 | 32 | SCREW | 12-018 | 2 |
| 3 | HOT CONTROL | 07-009 | 1 | 33 | WIRE CONDENSER | 05-008-005 | 1 |
| 4 | HEAT LIMITER | 07-010 | 1 | 34 | PANEL CONDENSER | 02-033 | 1 |
| 5 | SCREW | 12-005 | 4 | 35 | SCREW | 12-003 | 2 |
| 6 | SIDE INSULATION-HOT TANK | 08-004 | 1 | 36 | HANDLE | 02-054 | 1 |
| 7 | UPPER INSULATION-HOT TANK | 08-003-001 | 1 | 37 | STRUT | 02-052 | 2 |
| 8 | SILICON-DRAIN CAP | 09-005 | 1 | 38 | PROCESS COPPER TUBE | 10-001 | 1 |
| 9 | DRAIN CAP | 03-031 | 1 | 39 | DRIER | 05-002 | 1 |
| 10 | STAPLE | 05-005 | 8 | 40 | CONTROL PANEL | 02-038 | 1 |
| 11 | COLD WATER TANK | 02-003-008 | 1 | 41 | HOT WATER SWITCH | 07-002-001 | 1 |
| 12 | EVAPORATOR COPPER TUBE | 10-002-001 | 1 | 42 | SCREW | 12-007 | 2 |
| 13 | CAPILLARY TUBE | 10-003-001 | 1 | 43 | WASHER | 12-008 | 2 |
| 14 | INSULATION-SUCTION TUBE | 08-005 | 1 | 44 | OLP | 05-003-001 | 1 |
| 15 | HEAT SHRINKABLE TUBE | 05-005 | 1 | 45 | PTC | 05-003-001 | 1 |
| 16 | BASE-COLD TANK | 02-050 | 1 | 46 | WIRE ASSY' | 07-006 | 1 |
| 17 | SCREW | 12-001 | 2 | 47 | POWER CORD | 07-013-004 | 1 |
| 18 | LOWER INSULATION-COLD TANK | 08-021 | 1 | 48 | CORD BUSHING | 07-006 | 1 |
| 19 | COLD WATER OUTLET PIPE | 03-048-001 | 1 | 49 | PTC COVER | 05-003-001 | 1 |
| 20 | SILICON-OUTLET PIPE | 09-001 | 1 | 50 | SIDE INSULATION-COLD TANK | 08-022 | 1 |
| 21 | SILICON-INLET PIPE | 09-006 | 1 | 51 | CABINET | 03-101 | 1 |
| 22 | COLD WATER THERMOSTAT | 07-001 | 1 | 52 | WASHER | 12-008-001 | 5 |
| 23 | ALUMINUM TAPE | 05-006 | 3 | 53 | SILICON WASHER-FAUCET | 09-003-001 | 2 |
| 24 | COLD WATER OUTLET PIPE NUT | 03-058 | 1 | 54 | COLD FAUCET ASSY' | 23-002-001 | 1 |
| 25 | HOT TANK FITTING NUT | 03-066 | 1 | 55 | HOT FAUCET ASSY' | 23-002-002 | 1 |
| 26 | CABLE TIE | 17-003 | 2 | 56 | DREY TRAY | 03-103 | 1 |
| 27 | BASE-COMPRESSOR | 02-051 | 1 | 57 | BAFFLE | 03-107 | 1 |
| 28 | COMPRESSOR | 05-003-001 | 1 | 58 | GASKET-COLD TANK | 09-026 | 1 |
| 29 | SEAT RUBBER | 05-003-001 | 4 | 59 | TOP COVER RING | 03-102 | 1 |
| 30 | SPLIT PIN | 12-009-001 | 4 | 60 | | | |

EXPLODED VIEW
MODEL : B7B



B7B SERVICE PARTS LIST

| NO | PART NAME | PART NO. | Q'TY | NO | PART NAME | PART NO. | Q'TY |
|----|----------------------------|------------|------|----|---------------------------|------------|------|
| 1 | COLD WATER TANK | 02-003-010 | 1 | 31 | OLP | 05-003-001 | 1 |
| 2 | EVAPORATOR COPPER TUBE | 10-002-001 | 1 | 32 | PTC | 05-003-001 | 1 |
| 3 | CAPILLARY TUBE | 10-003-001 | 1 | 33 | WIIE ASSY' | 07-098 | 1 |
| 4 | INSULATION-SUCTION TUBE | 08-005 | 1 | 34 | POWER CORD | 07-013-004 | 1 |
| 5 | HEAT SHRINKABLE TUBE | 05-005 | 1 | 35 | CORD BUSHING | 07-006 | 1 |
| 6 | BASE-COLD TANK | 02-050 | 1 | 36 | PTC COVER | 05-003-001 | 1 |
| 7 | LOWER INSULATION-COLD TANK | 08-023-001 | 1 | 37 | SIDE INSULATION-COLD TANK | 08-022 | 1 |
| 8 | PARTITION TUBE | 03-113 | 1 | 38 | CABINET | 03-101 | 1 |
| 9 | SILICON-OUTLET PIPE | 09-001 | 1 | 39 | WASHER | 12-008-001 | 5 |
| 10 | PLUG-PARTITION TUBE | 09-039 | 2 | 40 | SILICON WASHER-FAUCET | 09-003-001 | 2 |
| 11 | CLIP-LOCKING | 03-114 | 1 | 41 | COLD FAUCET ASSY' | 23-002-001 | 1 |
| 12 | COLD WATER THERMOSTAT | 07-001 | 1 | 42 | COOK FAUCET ASSY' | 23-002-003 | 1 |
| 13 | ALUMINUM TAPE | 05-006 | 3 | 43 | DRIP TRAY | 03-103 | 1 |
| 14 | COLD TANK FITTING NUT | 03-067 | 1 | 44 | BAFFLE | 03-107 | 1 |
| 15 | CABLE TIE | 17-003 | 2 | 45 | GASKET-COLD TANK | 09-026 | 1 |
| 16 | BASE COMPRESSOR | 02-051 | 1 | 46 | TOP COVER RING | 03-102 | 1 |
| 17 | COMPRESSOR | 05-003-001 | 1 | 47 | | | |
| 18 | SEAT RUBBER | 05-003-001 | 4 | 48 | | | |
| 19 | SPLIT PIN | 12-009-001 | 4 | 49 | | | |
| 20 | GROUND WIRE | 07-098 | 1 | 50 | | | |
| 21 | SCREW | 12-018 | 2 | 51 | | | |
| 22 | WIRE CONDENSER | 05-008-005 | 1 | 52 | | | |
| 23 | PANEL-CONDENSER | 02-055 | 1 | 53 | | | |
| 24 | SCREW | 12-003 | 2 | 54 | | | |
| 25 | HANDLE | 02-054 | 1 | 55 | | | |
| 26 | STRUT | 02-052 | 2 | 56 | | | |
| 27 | PROCESS COPPER TUBE | 10-001 | 1 | 57 | | | |
| 28 | DRIER | 05-002 | 1 | 58 | | | |
| 29 | SCREW | 12-007 | 2 | 59 | | | |
| 30 | WASHER | 12-008 | 2 | 60 | | | |